New Sponges from the Yap Archipelago

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THE YAP ARCHIPELAGO is located east of the Philippines, in latitude 9°35′ N and longitude 138°15′ E. It is basically of rocky formation with an extensive fringing reef of live coral, which encloses a lagoon-like harbor and tidal-flat region at each end of the small archipelago.

In the summer of 1946 R. W. Hiatt of the University of Hawaii collected invertebrates, especially decapod crustaceans, in and about Yap. On two species of dromiid crabs he found interesting new species of sponges. He also collected a third species of sponge which is probably not a new species.

Spongosorites porites, new species

The holotype of this species is catalogue number 22732 of the United States National Museum.

This was collected in July, 1946, by R. W. Hiatt, on a dromiid crab of the genus *Cryptodromia,* found in holes in dead coral on tidal flats in Tomil Harbor, on the island of Yap.

Shape: A smoothly rounded mass.

Size: Approximately 10 mm. thick, 15 mm. in diameter.

Color: Black. In many sponge species there are many cells with darkly pigmented granules located within 1 mm. or less of the surface of the mass or right at it. In *Spongosorites porites* such cells are rather uniformly distributed throughout the sponge although they are somewhat more densely grouped near the surface.

Consistency: Weakly spongy.

Surface: Smooth to the naked eye, microscopically felted.

Oscules: Barely visible to the naked eye, probably close to 300 microns in diameter when fully opened, in life. About a dozen on the specimen.

Pores: Microscopic, contractile, chiefly closed in the specimen.

Ectosome anatomy: As in the Haliclonidae, and to a lesser extent in some Axinellidae, there is practically no dermal specialization. The rather dense endosome extends to and forms the surface. In many places there is a region about 100 microns thick, right at the surface, where there is a confusion of many spicules but no flesh. This may be an accidental condition. No subdermal space could be found.

Endosome anatomy: The flesh is dense, with a preponderance of heavily pigmented granules. The spicules are also densely crowded, so that very little cavity of any sort remains.

Skeleton: The abundant spicules are practically all oxeas. An occasional rounded end is almost certainly accidental. The megascleres are all close to 6 by 300 μ. The microscleres range from 2 by 50 to 3 by 75 μ, and often have a single bend in the middle, so that they vaguely resemble toxas.

Discussion: Topsent (1896: 117) established the genus *Spongosorites* for the one species *placenta.* This came from a depth of 550 meters in the Atlantic Ocean near the Azores. As compared to *porites,* it is paler, harder, and the smaller category of spicules has a size range about 5 by 70 μ. Topsent also describes the

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occurrence of centrotylote spicules, but it is not clear if these should be regarded as diagnostic; probably they are merely the sort of malformation that is known to be likely.

Subsequently many sponge species have been referred to *Spongosorites* because of their content of larger and smaller oxeas without definite intermediates, but these species have been radiate in architecture, with huge megascleres, thus clearly epipolasid in nature. In various places in my publications I have transferred all of them to other genera, except, of course, the genotype and one other species that Hallmann had already transferred. Thus it appears that this sponge from Yap is the second specimen of a *Spongosorites* that is available for consideration. The genus *Topsentia* has a spiculation of oxeas for megascleres, with microxeas for microscleres, but it has a definitely separable, tangent dermis, over subdermal cavities, and apparently sponges of this sort have never been confused with *Spongosorites.*

Special mention may be made of *Spongosorites suluensis* Wilson (1925: 331) from the Philippines, because of the proximity to Yap. This was made the type of the genus *Epipolasis* by de Laubenfels (1936: 162). It is a clearly epipolasid sponge, with huge oxeas 32 by 1,350 microns, and the microscleres are ultra-thin trichodragmas rather than toxa-like microxeas. It thus belongs in at least a different family, even a different order, from the proper type of *Spongosorites,* although it appears to answer the words of the diagnosis of the genus *Spongosorites.*

The pigment distribution in *S. porites* is unusual. The other characteristics, both of this species and of its genus, are all separately commonplace, yet the evidence shows that the particular combination of these traits is extremely rare.

Chondrilla euastra, new species

The holotype of this species is catalogue number 22731 of the United States National Museum.

This was collected in July, 1946, by R. W. Hiatt, on a dromiid crab of the genus *Cryptodromiopsis,* found under coral blocks on sand flats on the northeast shore of the island of Map.

Shape: A smoothly rounded mass.

Size: 7 by 10 by 14 mm.

Color: Black exterior, dark gray interior.

Consistency: Cartilaginous, a stiff jelly.

Surface: Smooth to the naked eye. Even under the microscope the irregularities appear minute.

Oscules: Now 200 μ in diameter, probably somewhat larger in life, 3 to 5 mm. apart.

Pores: Microscopic, contractile, closed.

Ectosome anatomy: There is a dense organic surface layer which contains ameboid cells but seems to be largely gelatinous material. The cells with darkly pigmented granules are chiefly within 100 μ of the surface but a few are scattered in the deeper tissues.

Endosome anatomy: Dense, but with the usual architecture of canals and chambers within the basal jelly. Many canals are about 150–200 μ in diameter. The flagellate chambers are round, 25 μ in diameter.

Skeleton: In addition to the ubiquitous jelly, there are scattered euasters, 18 μ in diameter. These consistently have no centrum, or so little that its presence is dubious.

Discussion: The genus *Chondrilla* was established by Schmidt (1862: 39) for the species *nucula* and *embolophora.* The second species was properly placed in synonymy to the first by Burton (1924: 206); thus *nucula* stands as genotype. This species is consistently gray in color and has a spiculation of only spheraster; these microscleres have a very large, conspicuous centrum. It is abundant throughout the West Indian region and the Mediterranean.

In and about Australia, there is another species of *Chondrilla,* characterized by a spiculation of spheraster in the ectosome and euasters in the endosome. This was first named *australiensis* by Carter (1873: 23). Since then, nine other names have been set up as supposed new species from the same region and with the same description. Burton (1924: 206 and

following) properly reduces them to synonyms. There is a species well-named *sacciformis* (Antarctic). Another (*kilakaria*) from India is like *nucula* except that it is bright orange in color. Hentschel's *jinensis* is like *australiensis*, but with huge spicules. Thus *euastra* would appear to be the sixth valid species of the genus. It is set off by its lack of spherasters—in fact it has exceedingly few spicules of any kind and thus approaches the genus *Chondrosia*, which it also resembles in color. In many other respects *Chondrosia* and *Chondrilla* are the same, the two genera being closely related.

Xestospongia exigua (Kirkpatrick)

This third species of sponge, collected in Yap by Dr. Hiatt, is here identified with some hesitation, and therefore is accompanied by a condensed description of the specimen. It was 20 to 30 cm. long, clavate, with contained living bivalve mollusks at intervals. It grew on tidal flats in the harbor at Yap. Only a fragment has been preserved. When dry it is very dark gray; when alive nearly black. It is hard but crumbles easily. It has a fairly even surface with oscules 2 mm. in diameter and about 2 cm. apart; the pores are very abundant and about 100 μ in diameter in the dried specimen. The spicules are packed densely around gross chambers, thus approximating a reticulate structure; they are oxeas 6 by 135 to 6 by 150 μ. A few much thinner ones are probably juvenile.

Kirkpatrick (1900: 139) described *Petrosia exigua* from the East Indies and de Laubenfels (1936: 70) transferred it to *Xestospongia*. On the basis of the original rather brief description the only difference from the Yap specimen seems to be that the original had hollow ascending tracts. If it were better known, further differences might be revealed, demanding a different, perhaps new, name for the Yap species. The latter is represented by U.S.N.M. catalogue number 22733.

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